

ABSTRACT OF THE DISCLOSURE

A multi-dimensional chemical-analysis system includes a longitudinally extending iso-electric focusing (IEF) channel and transversely extending high-pressure liquid chromatography (HPLC) channels. Piezo-electric pumps force sample fluid from the IEF channel to form jets as it exits through respective pump nozzles. The jets then enter the HPLC channels for parallel second-dimension separations. Alternatively, the jets can be used to “print” sample onto a moving medium to provide a two-dimensional time-vs.-band-position distribution of sample components.